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FROM

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SEASON 1953-54

KENYA

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KENYA
NYANZA PROVINCE

PROGRESS REPORT FOR THE SEASON 1953-54

BY

M. S. HASTIE

Introduction.

During the past year the water supply at Bungoma was completed and a 500 ft. bore-hole was sunk at Kibos. The development programme for the coming year at Kibos will be the installation of a 12,800 gallon storage tank, an A.C. electric power unit and a power house. An office and laboratory block for the entomologist is nearing completion, and later an insectary is to be built. At Homa Bay work on the water supply will be started in the near future.

In May 1953 Mr. Hastie went on long leave, returning in September. On 1st March 1954 Mr. T. J. Crowe of the Department of Agriculture took up his appointment as entomologist at the Cotton Experiment Station, Kibos

Visits to the Cotton Experiment Station, Kibos, and the Nyanza cotton areas were made during the season by Mr. J. Littlewood and Mr. J. C. May, Chairman and Director of the Empire Cotton Growing Corporation respectively.

Table 1.

Rainfall in Inches at Four Nyanza Stations.

	North Nyanza		*Central Nyanza*	*South Nyanza*	
	Itesio	*Bungoma*	*Kibos*	*Homa Bay*	
	Leprosarium	*Cotton Substation*	*Main Station*	*Ginnery*	*Cotton Substation*
April 1953	14·35	13·54	5·96	6·80	5·63
May	6·20	8·42	2·51	3·77	5·30
June	3·16	5·03	5·25	1·04	5·77
July	1·90	5·38	2·25	1·15	2·18
August	4·05	4·73	0·74	1·87	4·02
September	2·90	2·92	2·36	2·25	1·88
October	6·95	8·48	2·77	2·45	4·96
November	2·44	4·23	8·70	2·95	4·46
December	6·11	1·66	2·62	3·37	2·52
January 1954	Nil	0·68	1·93	Nil	0·66
February	0·80	2·29	2·54	1·55	0·21
March	5·27	3·59	3·85	0·50	1·36
	54·13	60·95	41·48	27·70	38·95

The main rains broke in April but by early May they were virtually finished and dry conditions prevailed till October/November when, fortunately, good short rains fell. Unsatisfactory planting conditions

were experienced throughout the province with the exception of North Nyanza and the Samia district of Central Nyanza which were also the areas which responded best to the October/November rains.

Cotton Crop.

A comparison of the 1953-54 crop with that of the previous season is given in Table 2.

Table 2.

Cotton Production in Nyanza by Ginneries.
1952-53 and 1953-54.

	1952-53			*1953-54*		
Ginnery	*Acreage*	*Total (400 lb. Bales)*	*% BR*	*Acreage*	*Total (400 lb. Bales)*	*% BR*
South Nyanza	12,000			14,000		
Homa Bay		1,390	13·2		726	36·6
Central Nyanza	35,000			30,000		
Kibos		259	15·4		322	37·9
Ndere		853	7·9		1,400	11·4
Ukwamba		2,461	3·8		3,340	4·4
North Nyanza	25,000			20,000		
Nambare		1,759	2·4		2,855	3·7
Malakisi		1,242	2·8		1,488	7·1
Total	72,000	7,964	5·8	64,000	10,131	8·9

The figures shown for the 1953-54 crop are approximations as ginning is still in progress. BR cotton is not exported but is used locally for filling mattresses, cushions, etc.

Buying started in South Nyanza early in December and elsewhere on 7th January to conform with Uganda along the border.

Cotton seed distributed to growers for the 1953-54 season was dusted with Perenox as a protective measure against bacterial blight. All ginneries were inspected in March 1953 and again in January 1954 by Mr. Drakley, of the British Cotton Growing Association, whose services have been made available to the Department of Agriculture in the Lake Province of Tanganyika Territory. Most ginners were very co-operative and the ginning standard was generally improved.

Some Uk 48 seed was introduced into South Nyanza last season and for the 1954-55 season all the N 17 seed will be replaced by Uk 48.

The quality of the crop was fairly good but much damage and loss were sustained in South Nyanza and Kano Plain. The late rains of October/November were responsible for a larger crop than was expected earlier in the season.

Table 3 shows the disposal of the Nyanza cotton crop during the past 3 seasons.

Table 3.

Disposal of the Nyanza Cotton Crop. (Bales of 400 lb.)

Destination	*1951-52*	*1952-53*	*1953-54 (Provisional)*
Bombay	5,361	3,849	1,650
Liverpool	2,899	1,001	2,598
Germany	1,079	1,193	1,736
Japan	539	580	254
Holland	200	130	200
Hong Kong	200	125	—
France	—	—	—
Ceylon	—	200	117
Italy	—	—	300
Austria	75	—	283
Destination not yet known	—	—	2,143
	10,353	7,078	9,281

Pests and Disease.

Bollworms.

American bollworm (*Heliothis*) was the most numerous and active species. Quite considerable damage was sustained in South Nyanza up to late September from this pest, and losses were being caused in the other cotton areas of the province up to December on a smaller scale. Spiny bollworm (*Earias spp.*) was fairly common but false codling moth (*Argyroploce leucotreta*) and pink bollworm (*Platyedra gossypiella*) damage was rarer and very sporadic.

Lygus.

This pest again caused considerable injury to cotton plants throughout the cotton areas. The dry conditions, particularly in South Nyanza and Kano Plain, tended to accentuate the damage, as the plants in the native shambas had little chance to recover. Most of Samia and Itesio escaped *Lygus* damage.

Stainers.

Stainers were probably the most destructive agency to cotton bolls during the past season. Cotton plants in South Nyanza, Kano Plain, and Asembo Bay carried large numbers of small mummified bolls, and what seed cotton did reach maturity was very badly stained. This is reflected in the % BR shown for Homa Bay and Kibos ginneries in Table 2. The commonest species found were *Dysdercus nigrofasciatus* and *D. superstitiosus*. Other species were *D. fasciatus* and *D. cardinalis*.

Other Pests.

As in previous seasons *Helopeltis* was sporadic and jassid damage was restricted to South Nyanza, where the susceptible N17 variety is grown. This variety will be replaced by the highly jassid resistant variety Uk 48 for 1954-55.

Bacterial Blight.

The 1953-54 season was not the type conducive to the spread of bacterial blight (*Xanthomonas malvacearum*), and heavy damage did not result from it. In addition, the dusting of the seed did much to control this disease. The leaf form was fairly common but the blackarm phase was not so widespread as in the past.

Results of Experiments.

Variety and Strain Trials.

The results of three variety and strain trials are shown in Table 4. Five trials were planted but those at Sio Port and Bungoma were failures.

Table 4.

Yields of Seed Cotton in lb. per acre from 3 Trials, Nyanza, 1953-54.

Variety or Strain	*North Nyanza* *Adungosis*	*Central Nyanza* *Kibos*	*South Nyanza* *Homa Bay*
Uk 48	1,240	147	450
7/7	1,315	185	457
7/9	—	181	—
7/251	1,421	213	538
7/254	1,421	223	707
7/287	1,164	160	637
7/314	1,315	187	618
7/367	—	262	—
8/151	1,361	209	555
8/290	1,482	194	830
8/291	1,331	192	495
9/16	1,346	187	482
9/107	1,194	179	561
S47	1,013	200	550
DE 715/6	1,043	259	478
BC 66	998	208	467
Sig. Diff. (P=0·05)	276·48	80·89	180·39
S.E.	95·63	28·21	63·05
Design	Randomised Blocks	Randomised Blocks	Randomised Blocks
No. of Replications	4	4	4
Plot Size	6′ × 30′	6′ × 30′	6′ × 30′
Planting Date	Late May	Early May	Late May
Spacing	3′ × 2′	3′ × 2′	3′ × 2′

The local commercial variety in North and Central Nyanza is S47, which was taken as the control at Adungosis and Kibos. In South Nyanza Uk 48 was the control.

No variety or strain was significantly better than control at Kibos but at Adungosis and Homa Bay several of the Ukiriguru strains showed up well, in particular 7/254 and 8/290. At Kibos and Homa Bay stainers were mainly responsible for the levelling-out of results, which do not really reflect the productivity of the different varieties and strains. In all the trials the Uganda strains, S47, DE715/6, and BC66 were quicker maturing than Uk 48 and the Ukiriguru strains. This was also the case in last season's experiments.

Seed Dusting Trials.

Trials using the same dusts as last season were repeated in the 1953-54 season. At Kibos there were two trials, one at one part of dust to 150 parts of seed by weight and the other at one part to 300. At Homa Bay a single trial incorporating both rates was laid out.

TABLE 5.

SEED DUSTING TRIAL. KIBOS.

FINAL STAND PER ACRE AND SEED COTTON YIELD IN LB. PER ACRE.

Dust	*1/150*		*1/300*	
	Final Stand	*Yield*	*Final Stand*	*Yield*
R. 1078 × 78	9,685	535	9,541	438
R. 1214 × 23	7,430	672	11,155	624
R. 1214 × 78	8,338	541	9,945	620
R. 1489 × 32	10,706	525	12,112	579
R. 3067 × 23	6,225	439	9,113	656
Untreated	9,713	511	9,705	523
Sig. Diff. (P=0·05)		183·47		175·28
S.E.		60·89		58·16
Design	Randomised Block		Randomised Block	
No. of Replications	4		4	
Plot Size	24′ × 36′		24′ × 36′	
Planting Date	End of April		Early April	
Spacing	3′ × 2′		3′ × 2′	
Cultivation	Tied Bench Ridges		Tied Bench Ridges	
Variety	Uk 48		Uk 48	

Although there were considerable differences in vegetative growth the effect of stainers reduced yields to the extent that in neither of the trials was any treatment significantly better than control.

TABLE 6.

SEED DUSTING TRIAL. HOMA BAY.

FINAL STAND AND YIELD IN LB. SEED COTTON PER ACRE.

Dust	*Rate*	*Final Stand*	*Yield*
R. 1078 × 78	1/300	9,499	419
R. 1214 × 23	,,	7,684	412
R. 1214 × 78	,,	8,319	520
R. 1489 × 32	,,	10,194	410
R. 3067 × 23	,,	9,166	461
R. 1078 × 78	1/150	9,499	533
R. 1214 × 23	,,	8,258	504
R. 1214 × 78	,,	8,833	521
R. 1489 × 32	,,	9,983	518
R. 3067 × 23	,,	11,102	722
Untreated	,,	8,500	440
Sig. Diff. (P=0·05)			208·78
S.E.			72·30
Design	Randomised Block		
No. of Replications	4		
Plot Size	15′ × 24′		
Planting Date	Late June		
Spacing	3′ × 2′		
Cultivation	Tied Ridges		

At Homa Bay the only treatment which was significantly superior was R. 3067 × 23 at 1/150. Again stainer damage upset results.

In the 1952-53 season R. 1078 × 78 and R. 1489 × 32 were the most promising treatments but this is not borne out by the results in Tables 5 and 6.

Plant Spacing Experiment.

The plant spacing experiment as laid out in the 1952-53 season was repeated last season and the results are given in Table 7.

Table 7.

Spacing Trial: Homa Bay, 1953-54.

Plant Stand and Yields of Seed Cotton in lb. per acre.

Spacing	*Yield*	*Actual Stand*	*Full Stand*
3′ × 2′	507	11,862	14,520
3′ × 3′	382	7,217	9,680
3′ × 4′	382	5,704	7,260
Sig. Diff. (P=0·05)	139·5		
S.E.	40·31		

Four randomised blocks of plots 21′ × 24′.
Land tie-ridged and planted late May.

The standard spacing advocated in Nyanza Province is rows 3′ apart, holes 2′ apart in the row and 2 plants per hole. In the above table this spacing was not significantly better than the other two. Again, it is felt that stainers were responsible for the reduced yields and variations.

Conclusion.

An attempt was made during last season to start a series of experiments which would determine the best types of cultivation for the different areas and the optimum dates of planting. Unfortunately, many of the plots were failures, but general indications were as follows: —

(1) early planting gave the best results in all areas except Samia,
(2) tied ridges and tied bench ridges gave the best results on the whole when the planting date was before June,
(3) flat cultivation gave the best results when the planting date was after June, and
(4) in the Samia area it was found that planting before June gave poor results and no benefit was obtained from any cultivations other than flat.

This information is only the result of one season's work and is therefore no criterion for a future planting policy. It is hoped that properly controlled experiments will be laid out over a number of years at a few selected localities to determine optimum planting dates and best methods of cultivation but this will not be possible in the 1954-55 season.

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